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work contributes additional evidence showing that the line between autotrophic and heterotrophic nutrition is not so sharply drawn as is generally supposed. The power of the lower algae to use carbon compounds and especially the lower acids explains the abundant growth of those forms where decaying organic matter is present, as in contaminated waters.—H. HASSELBRING.

Rhizomorphic root-rot of vine.—MAGNUS²⁵ describes a rhizomorphic root-rot of the vine which causes the death of numerous plants in the vineyards of certain regions of Europe. The rhizomorphs are white strands which may attain a diameter of 2^{mm}. The strands lack a well-developed cortex, thereby differing from the characteristic strands of *Armillaria mellea*. The fungus is found to be abundant on the posts used as supports for the vines. From the posts the strands spread to the young roots of the vine, entwining and killing them. Although this disease with the accompanying rhizomorphs had been known for several years, it was not until the present year that the connection of the rhizomorphs with one of the Hymenomycetes was established by finding numerous sporophores of *Collybia platyphylla* growing from the strands. As this fungus is very common in America, it is not unlikely that it may be connected with one of the numerous rhizomorphic root-rot diseases infecting our fruit trees.—H. HASSELBRING.

Segregates of *Rhus glabra*.—GREENE²⁶ has studied the forms referred to *Rhus glabra* throughout its reputed range. He remarks that "there is no one species of tree or shrub of any continent that really holds the geographic range which the books and lists ascribe to *Rhus glabra*;" and points out the exceedingly diverse areas it is said to occupy in its continental distribution. Accordingly he has begun its segregation on the basis of such herbarium material as is available, recognizing the fact that this is probably a very scanty showing of the real situation, for "no special call has been made for collecting these shrubs from different regions." The form chosen to stand for the original *R. glabra* L. is one ranging from eastern Virginia and southern Maryland through southern Pennsylvania to Connecticut. Outside of that region botanists will have to refer their reputed forms of *R. glabra* to other species. This initial work of segregation has resulted in 29 species, 24 of which are new.—J. M. C.

Transpiration.—ARESCHOUG maintains the correctness of his view that the palisade tissue, when well developed and compact, reduces transpiration,²⁷ explaining away certain apparently contradictory experiments of HESSELMAN and others.

It seems to be about time to dismiss the idea of transpiration as a function,

²⁵ MAGNUS, P., Ueber eine Erkrankung des Weinstockes. Ber. Deutsch. Bot. Gesells. 24:402-406. 1906.

²⁶ GREENE, EDWARD L., A study of *Rhus glabra*. Proc. Wash. Acad. Sci. 8: 167-196. 1906.

²⁷ ARESCHOUG, F. W. C., Ueber die Bedeutung des Palisadenparenchyms für die Transpiration der Blätter. Flora 96:329-336. 1906.

of which leaves are the organs, and to consider it as a merely unavoidable evaporation whose amount depends upon physical factors that need to be exactly evaluated. What would be thought of an engineer who attempted to compare the performance of two boilers of different construction if he knew nothing of the heat units applied? Yet most of the so-called "comparative" studies of transpiration take no account of the fundamental energetics involved, assuming that when leaves are placed "under the same conditions" they have a like amount of energy for transpiration!—C. R. B.

Correlation and leaf size.—A. J. EWART has published a short note dealing with correlation and leaf size.²⁸ LINDEMUTH has shown that adult leaves of *Begonia* and *Iresine* increase in size when allowed to root in the soil. EWART conducted experiments on *Tilia europaea*, and found that adult leaves do not increase in size, even when most of the leaves are removed. However, a partial defoliation of young shoots causes a development of unusually large leaves, and the increase in size beyond the normal is due to an increase in the number of cells and not to an increase in their size, as supposed by LINDEMUTH. That increased size is due to an increased number of cells in such cases is not the common view.—H. C. COWLES.

Presynapsis and synapsis.—Presynaptic and synaptic stages in the first division of the embryo sac mother cell of *Adoxa* are interpreted by LAGERBERG as follows.²⁹ Before synapsis the chromatin granules collect into groups which are often in pairs, apparently less numerous than the mature chromosomes. The chromatic substance of the groups becomes distributed along parallel linin threads, so that at the beginning of synapsis there are two parallel threads which fuse as synapsis proceeds. The single thread which is thus formed is the thickest which appears at any time in this nucleus. Accordingly, the fusion of the male and female elements of the nucleus takes place during synapsis.—CHARLES J. CHAMBERLAIN.

Embryology of Capsella.—The late Mrs. Mabel Schaffner³⁰ left an incomplete paper on the embryology of *Capsella*, which her husband, Professor JOHN H. SCHAFFNER, has published. It is a detailed study of the development of the embryo of what is perhaps the most frequently used dicotyledon in teaching. Aside from the completeness of the series, the striking feature of the plates is that the whole series is drawn to the same scale, representing to the eye the actual increase of the embryo in size at each stage of its development.—J. M. C.

²⁸ EWART, A. J., The influence of correlation upon the size of leaves. *Annals of Botany* 20:79-82. 1906.

²⁹ LAGERBERG, TORSTEN, Ueber die präsynaptische und synaptische Entwicklung der Kerne in der Embryosackmutterzellen von *Adaxa moschatellina*. *Botaniska Studier*, tillägnade F. R. KJELLMAN. 1906:80-88.

³⁰ SCHAFFNER, MABEL, The embryology of the shepherd's purse. *Ohio Nat.* 7:1-8. pls. 1-3. 1906.